

Combined HIV services and Microenterprise for Equitable and Sustained Recovery (CHIMES) **Intervention For Sober House Residents in Dar es Salaam, Tanzania: A Pilot Study**

Background: The co-occurrence of substance use disorders (SUD) and HIV presents a significant challenge worldwide, particularly in Tanzania, where high rates of both hinder population health and economic development. The National AIDS Control Program recognizes people who use or inject drugs (PWUID) as a key vulnerable population in combating the HIV epidemic, with some PWUID samples showing seroprevalence rates as high as 36%. Our formative research conducted in 2023 in Dar es Salaam identified a need for entrepreneurship training and enhanced HIV care in drug and alcohol rehabilitation centers, known as sober houses. Based on these findings and our experience with implementing HIV and microenterprise intervention studies funded by the National Institutes of Health in Tanzania, we developed the CHIMES intervention for people receiving SUD treatment. The CHIMES intervention includes: 1) A 10-week intensive class focused on the principles of microenterprise; 2) Mentorship to assist in the development of a business plan, technical support, and financial management of a grant after treatment completion and community re-entry; 3) A concurrent nurse-led HIV care and prevention program in the sober house that will provide HIV testing, initiate clients on ART or PrEP, and craft an HIV care follow-up plan. CHIMES is novel, and our study team has not been able to identify a combined microenterprise and HIV prevention intervention for people receiving SUD treatment worldwide.

Aims: Our primary study aims to conduct a pilot randomized controlled trial (RCT) to assess the feasibility and preliminary efficacy of the CHIMES intervention for people receiving SUD treatment in Tanzania. The specific aims are to develop the CHIMES intervention for sober house residents and assess its acceptability, feasibility, and preliminary efficacy.

Approach: Our pilot RCT will recruit 80 participants (40 in each arm) currently living in a sober house, with at least 30-days of abstinence from substances, and who plan to continue treatment in the sober house for at least 15 additional weeks. The intervention arm will receive the full CHIMES intervention, and the control arm will receive only the HIV educational component and access to a database with employment opportunities. We will evaluate feasibility through 5 primary outcomes related to enrollment, retention, randomization, acceptability, and level of participation, as well as three behavioral outcomes related to HIV care, microenterprise productivity, and sustained SUD remission. We will measure these outcomes at baseline, 3-, 6-months post-intervention, as well as conduct longitudinal in-depth interviews (n=20) at each follow-up point with participants to enhance the data need for the development of a full-scale clinical effectiveness trial.

Research Team: Lead by Dr. Mushy, our multidisciplinary team brings expertise in HIV and microenterprise interventions, SUD treatment in Tanzania, nurse-initiated management of ART, and implementation science. Dr. Conserve, Dr. Mushy, and Prof. Tarimo lead research activities, supported by Dr. Liang's statistical expertise. Dr. Conserve and Dr. Mushy have extensive experience in Tanzanian health research and collaboration with governmental organizations. Dr. Conserve, Associate Professor at George Washington University, will mentor Dr. Mushy because of his ongoing projects in Tanzania and expertise in HIV and implementation science to ensure the project is successfully implemented.

Future direction: Our study aligns with Tanzania's Ministry of Health initiatives and addresses the dual burden of SUD and HIV, contributing to global efforts to combat the SUD-HIV comorbidity. By expanding the NIMART program into sober houses, we aim to prevent SUD recurrence and promote economic empowerment among PWUID.

Public health significance: The dual burden of SUD and HIV is a growing concern in sub-Saharan Africa, with Tanzania particularly vulnerable due to its role as a trafficking hub in the global drug trade. Tanzania exhibits a higher HIV prevalence compared to its regional neighbors, attributed to factors such as poor case identification and linkage to care, especially among men, leading to a significant proportion of individuals living with HIV unaware of their status. PWUID in Tanzania face particularly high HIV seroprevalence rates, highlighting the urgent need for targeted interventions within this population. Recurrence of SUD following treatment discharge is common, with a lack of meaningful employment identified as a risk factor [8]. Research from sober houses in Tanzania underscores the importance of employment-promotion interventions in SUD recovery. Drawing from successful interventions in other contexts, such as a combined HIV prevention and microfinance randomized controlled trial (RCT) among female sex workers who use drugs in Kazakhstan, and the integration of financial literacy and vocational training in HIV prevention efforts, this study proposes the development and evaluation of the CHIMES intervention in Tanzania. By addressing the intersecting needs of individuals receiving SUD treatment, including employment training and HIV prevention, the CHIMES intervention aims to promote recovery from substance use and improve long-term HIV outcomes in Tanzania.